

What is claimed:

1. A Lantibiotic Display Peptide comprising a chimeric polypeptide comprising a lantibiotic peptide, an amino acid spacer attached to the C-terminus of the lantibiotic peptide, and a subtilin leader segment attached to the spacer.

2. The Lantibiotic Display Peptide of claim 1, wherein the lantibiotic peptide is obtained from *Bacillus subtilis*.

3. The Lantibiotic Display Peptide of claim 2, wherein the lantibiotic peptide is obtained from *Bacillus subtilis* strain 168.

4. The Lantibiotic Display Peptide of claim 1 or 2, wherein the lantibiotic peptide is sublancin 168 comprising amino acid residues 1-38 of SEQ ID No. 2.

5. The Lantibiotic Display Peptide of claim 1, wherein the spacer comprises from 15-25 amino acid residues.

6. The Lantibiotic Display Peptide of claim 1, wherein the spacer comprises about 20 amino acid residues.

7. The Lantibiotic Display Peptide of claim 1, wherein the subtilin leader segment comprises amino acid residues 58-81 of SEQ ID No. 2.

8. The Lantibiotic Display Peptide of claim 1, wherein the subtilin leader segment comprises amino acid residues 68-81 of SEQ ID No. 2.

9. The Lantibiotic Display Peptide of claim 1, wherein the subtilin leader segment comprises amino acid residues 78-81 of SEQ ID No. 2.

10. A mutagenesis vector comprising a subcloning region and a polynucleotide comprising SEQ ID No. 1, wherein the polynucleotide is located within the subcloning region of the vector.

11. The mutagenesis vector of claim 10, wherein a nucleotide sequence of SEQ ID No. 2 is subcloned into the polynucleotide comprising SEQ ID No. 1.

12. A host cell comprising a recombinant insertion comprising an EcoRI-HindIII, 5.7kb nucleotide insert from a pLPHe plasmid according to Figure 5.

13. The host cell of claim 12, wherein the cell is *Bacillus subtilis*.

14. A method for expressing a Lantibody Display Peptide on a surface of a host cell comprising the steps of:

- a) providing a host strain;
- b) providing a vector comprising a gene encoding the lantibody display peptide;
- c) transfecting the host cell with the vector;
- d) selecting a transfected host cell; and
- d) identifying a cell expressing the Lantibody Display Peptide.

15. A method for expressing a Lantibody Display Peptide on a surface of a host cell of claim 12 comprising the steps of:

- a) linearizing a mutagenesis vector comprising a nucleotide insert encoding the Lantibody Display Peptide of SEQ ID No. 2 subcloned within a nucleotide insert of SEQ ID No. 1;
- b) transfecting the host cell with a linearized vector of a);
- c) selecting the host cell having a chromosomally integrated nucleotide insert of SEQ ID No. 2 by growing the cell in selection medium; and

d) identifying the cell expressing the Lantibody Display Peptide by measuring binding of the Lantibody Display Peptide to a target molecule.

16. The method of claim 15, wherein the host cell is *Bacillus subtilis* strain 168.

17. The method of claim 15, wherein the target molecule comprises a nucleophilic group.

18. The method of claim 17, wherein the nucleophilic group is located within an antigen, an antibody, a virus particle, a bacterial cell, a bacterial spore, a vegetative bacterial cell, or a protein or peptide on any of the aforementioned molecules.

19. A method for identifying a Lantibody Display Peptide expressed on a host cell surface having the ability to bind to a target molecule, comprising providing a host cell expressing a Lantibody Display Peptide on the host cell surface, mixing the host cell with a target molecule, detecting binding of the target molecule to the Lantibody Display Peptide with an antibody, isolating the host cell by a means recognizing the antibody, and purifying and sequencing the Lantibody Display Peptide expressed on the host cell surface.

20. A kit for identifying a target molecule for a Lantibody Display Peptide comprising
a) a cell expressing the Lantibody Display Peptide in its cell surface;
b) an anti-lantibody antibody; and
c) a means for immunoadsorption.